CLAIMS

What Is Claimed:

1. An ejector for ejecting molded articles from a mold without liquid lubrication, the ejector comprising:

an elongated, steel shank having an article-engaging end and a head end; and

a substantially uniform pre-coating of metal having a thickness of between about 0.00004 to about 0.00007 inch over the steel shank applied prior to cutting of the article-engaging end of the shank to shorten the shank to a desired length and deburring of the peripheral edge of the cut shank and, said metal pre-coating selected from the group consisting of nickel or alloys of nickel, the pre-coating remaining substantially intact at the peripheral edge of the cut shank end and providing low friction reciprocal sliding of the shank within the mold after said cutting and deburring.

2. An ejector in accordance with Claim 1 in which the metal pre-coating has a thickness in the range of approximately 0.00004 inch to 0.0001 inch.

3. An ejector in accordance with Claim 1 in which the metal pre-coating has a thickness of approximately 0.00005 inch.

4. A dry ejector in accordance with Claim 1 in which the metal pre-coating is an alloy including nickel, phosphorus and polytetrafluoroethylene.

5. A dry ejector in accordance with Claim 1 wherein the dry ejector is an ejector sleeve and the metal pre-coating is an alloy including nickel, phosphorus and polytetrafluoroethylene.

6 A dry ejector in accordance with Claim 1 wherein the dry ejector is an ejector sleeve and the metal pre-coating is an alloy including 80-83% by weight nickel, 1-11% by weight phosphorus and 8-9 by weight polytetrafluorothylene.

7. A dry ejector in accordance with Claim 1 wherein the dry ejector is an ejector pin and the metal pre-coating is an alloy including nickel and cobalt.

8. A dry ejector in accordance with Claim 1 wherein the dry ejector is an ejector pin and the metal pre-coating is an alloy including about 48% by weight cobalt and balance nickel.

9. A dry ejector in accordance with Claim 1 wherein the dry ejector is an ejector blade and the metal pre-coating is an alloy including nickel and cobalt.

10. In a mold for molding plastic articles lubricant-free a combination comprising:

an upper mold portion;

a lower mold portion;

said supper and lower mold portions forming an article-defining cavity therebetween when brought together;

one of said upper and lower mold portions having an ejector-receiving bore in communication with said article-defining cavity;

an ejector having an article-engaging end and a head end being disposed in the bore for reciprocal movement of the ejector between an extended position in which the article-engaging end extends into the article-defining cavity to eject molded plastic articles and a retracted position in which the article-engaging end of the ejector is disposed outwardly of the article-defining cavity; and

said ejector having a substantially uniform, lubricious pre-coating of a material selected from the group consisting of nickel or alloys of nickel with a thickness of less than approximately 0.00001 inch applied prior to cutting of the article-engaging end of the ejector to shorten the ejector to a desired length and deburring of the peripheral edge of said ejector through the cutting and

deburring to provide dry lubrication of the ejector for low friction reciprocal movement of the ejector within the bore between said extended and retracted positions.

11. The combination in accordance with Claim 10 in which the thickness selected for the lubricious pre-coating facilitates cutting of the article-engaging end of the ejector and deburring of the cut end with the coating remaining substantially intact at the cut and deburred end of the ejector.

OLD CLAIMS

1. An ejector for ejecting molded articles from a mold without liquid lubrication, the ejector comprising:

(a) an elongated, steel shank having an article-engaging end and a head end; and

(b) a substantially uniform coating of metal over the steel shank, the coating being of a material harder than the steel and having a lower coefficient of friction of the steel, the coating allowing cutting of the article-engaging end of the shank to shorten the shank to a desired length and deburring of the cut shank end with said coating remaining substantially intact and providing low friction reciprocal sliding of the shank within the mold.

5. A dry ejector in accordance with Claim 1 in which the mold has an inner wall defining a bore in the mold, with the ejector being disposed in the bore and proportioned to have a total clearance with the bore wall in the range of 0.0003 inch to 0.0006 inch to prevent formation of flash.

6. In a mold for molding plastic articles lubricant-free, the combination comprising:

(a) an upper mold portion;

(b) a lower mold portion;

said upper and lower mold portions forming an article-defining cavity therebetween when brought together:

(a) one of said upper and lower mold portions having an ejector-receiving bore in communication with said article-defining cavity;

(b) an ejector having an article-engaging end and a head end and being disposed in the bore for reciprocal movement of the ejector between an

extended position in which the article-engaging end extends into the article-defining cavity to eject molded plastic articles and a retracted position in which the article-engaging end of the ejector is disposed outwardly of the article-defining cavity; and

(c) said ejector having a substantially uniform, lubricous coating with a thickness in the range of approximately 0.00004 inch to approximately 0.0001 inch to provide dry lubrication of the ejector for low friction reciprocal movement of the ejector within the bore between said extended and retracted positions.

7. The combination in accordance with Claim 6 in which the thickness selected for the chromium coating facilitates cutting of the article-engaging end of the ejector and deburring of the cut end with the coating remaining substantially intact at the cut and deburred end of the ejector.

8. A method of manufacturing a mold with a dry ejector, comprising the steps of: providing a nominal length ejector:

(a) coating the nominal length ejector with a low friction coating;

(b) cutting the nominal length ejector to a selective size and forming a cut end with the coating at the corner at the cut end;

(c) deburring the cut end of the ejector while leaving the low friction metal coating substantially intact at the corner of the cut end without flaking or peeling the coating at the cut end corner; and

(d) placing the metal coated, cut-to-size in the mold.

9. A method in accordance with Claim 8 in which the low friction metal coating comprises chromium, nickel and alloys thereof.

10. A method in accordance with Claim 9 in which the coating has a thickness in the range of approximately 0.00004 inch to 0.0001 inch.

11. A method in accordance with Claim 8 in which the step of deburring the cut end of the ejector comprises laying the ejector substantially flat against a fine abrasive

emery paper, with the cut end in contact with the emery paper, and rotating it about its axis.

12. A method of producing a customized ejector, comprising the steps of:

(a) providing a nominal length ejector of steel;

(b) coating the nominal length ejector with a coating having a lower coefficient of friction that the steel and coating the ejector with a thin coating that does not nominally increase the diameter of the ejector with respect to a bore in the mold for receiving the ejector; and

(c) cutting the nominal length ejector to a selective size to form a cut end with a corner thereon, and deburring the cut end of the ejector while leaving the low friction metal coating substantially intact at the corner without flaking or peeling the coating at the corner of the cut end.

13. A method in accordance with Claim 12 in which the step of coating the nominal length ejector with a low friction metal coating comprises coating with chromium, nickel and alloys thereof.

14. A method in accordance with Claim 13 in which the step of coating comprises applying a thin coating having a thickness in the range of approximately 0.00004 inch to 0.0001 inch.